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The correlation between medical students' bowel habits and chronic constipation

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ABSTRACT

Aims: Constipation is one of the most common complaints of the digestive system. The prevalence of constipation in the general population is approximately 15%. The aim of this study was to investigate the frequency of constipation in medical students, their defecation habits and the correlation between the two.

Methods: The study was conducted between 1 January and 1 June 2019 through questionnaires. The relationship between individuals' defecation habits and chronic constipation was investigated within the scope of the study. Data on age, sex, constipation status, change in bowel habits within the last three months, defecation frequency, time of daily defecation, period spent in the toilet, reading in the toilet, and the type of toilet used were collected.

Results: 425 medical students were included in the study. 2.86% of the students reporting constipation were first year undergraduates in medical school, while 7.53% were third and 9.09% were sixth year students. Irregular defecation was higher in all groups. The rate of constipation was high in groups with irregular defecation. It was observed that those with regular defecation habits defecated more in the mornings. When the time spent for defecation was studied, it was seen that it was mostly less than 10 minutes.

Conclusion: In the younger population the incidence of constipation is lower compared to the elderly population. Bowel habits, however, vary according to societies and personal characteristics. Reading in the toilet has become a common habit among the younger population. Reading in the toilet elongates the time spent in the toilet.

Keywords: Bowel habits, constipation, defecation, medical student

INTRODUCTION

Bowel habits and constipation are closely correlated. Bowel habits vary according to societies and even to families (individuals). Bowel habits change depending on individuals' chronic diseases, medications they are on, their lifestyles and eating habits. Such variations affect frequency of constipation as well.[1]

Constipation is in fact a symptom, not a disease. It is one of the most common complaints of the digestive system.[2] Patients presenting with constipation may refer to different complaints. Some patients mention a decrease in defecation frequency, while some others refer to difficulty in defecation with hard to pass stools.[3] Yet 60% of patients complaining of constipation are those who defecate daily.[4] Such patients also complain of long-lasting defecation, straining taking up most of the time and a sensation of lingering discomfort. These complaints suggest functional constipation.[5]

The prevalence of constipation differ across societies, age groups and the characteristics of individuals questioned. Its overall prevalence in the general population is considered to be approximately 15% (12-19%).[6,7] It is, however, observed more in women and individuals over 60 years of age. Such frequency is affected by individuals' chronic diseases and lifestyles. Further, bowel habits cause defecation problems.

The aim of this study was, therefore, to investigate the frequency of constipation in medical students (healthy young individuals), their defecation habits, and the correlation between the two.

METHODS

The study was initiated with the approval of the Necmettin Erbakan University Meram Medical Faculty Clinical Researches Ethics Committee (Date:2018, Decision No:1603). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

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This study was planned as a survey study that was conducted on a volunteer basis. The questionnaire used comprised of 9 questions which were designed to investigate the participants' defecation habits and to collect data on the correlation between such habits and constipation. The study population was selected among the first, third and sixth year undergraduates studying at Necmettin Erbakan University Meram Faculty of Medicine. The reason why groups were allocated such population was that first year students were those who had not yet received medical training, thus, better reflecting the population. Third year students, on the other hand, were those who had completed their basic medical education but had not started clinical training yet. Sixth year students comprised the medical doctor group who had completed their medical training. These groups reflected three different stages in medical training. Further, the study was conducted between 1 January 2019 and 1 June 2019 through questionnaires.

The demographic data and bowel habits of all participants suggested to have affected constipation were questioned and studied. Bowel habits of the participants were also investigated. The screening parameters included age, sex, presence of constipation, change in bowel habits within the last three months, defecation frequency, time of daily defecation, time spent in the toilet, reading in the toilet (mini electronic device use), and the type of toilet used (sitting-squatting). Constipation is defined as less than 3 times stool discharge per week in epidemiological studies. However, more than half of the patients who stated that they defecated less than 3 times, they had bowel movements. Irregular defecation is called straining during defecation or incomplete defecation and fitful defecation periods.[8] The assessment of participants reporting constipation was conducted according to the Rome IV criteria.[9]

The exclusion criteria included individuals with a history of colorectal surgery and those who had inflammatory bowel disease, chronic metabolic diseases, endocrine and neurological disorders.

Statistical Analysis

Such descriptive statistics as the arithmetic mean, standard deviation, minimum and maximum values for the participants' age variable were put forth within the scope of data collected through questionnaires while cross tables were presented so as to include percentages and frequency figures for categorical data. The chi-square tests were used to investigate whether there were differences among the groups within the framework of cross table assessments. In addition, the calculations were made using Exact or Monte Carlo methods depending on the number of data and the type of table in the chi-square test. Statistical significance was determined as 5% and the analyses were conducted with the SPSS software version 22.

RESULTS

A total of 425 individuals were included in the study. Of these 140 were first year, while 186 were third year and 99 were sixth year medical students. Among the first year students 47 were male and 93 were female, while their mean age was 18.36. 88 of the third year students were male, while 98 were female and their mean age was 21.56. 55 of the sixth year students were male, while 44 were women and their mean age was 23.82.

2.86% of the students reporting constipation were first year students, 7.53% were third and 9.09% were sixth year students. Change in bowel habits within the last three years was 32.86%, 34.95% and 38.39% in first, third and sixth year students respectively.

When defecation frequency was investigated it was seen that a frequency of more than three times a week was dominant. While the third year students defecated every other day, first and sixth year students defecated rather daily. Most of the groups' defecation frequency was within normal limits.

When the time of daily defecation was investigated it was observed that this was more irregular. The rate of irregular defecation was high in all groups and this was statistically significant ($p<0.020$). The constipation rate was higher in groups with irregular defecation. While the rate of irregular defecation was 72.1% among the first year students, 2% of them were constipated. While the rate of irregular defecation was 55.4% among the third year students, 5.8% of them were constipated. While the rate of irregular defecation was 57.6% among the sixth year students, 10.5% of them were constipated. These results may have been affected by the intense physical activity of the 6th grade internship program and the stress factors that the exam prepared for postgraduate medical education may have caused in 6th grade students compared to other groups. It was also observed that those who had regular defecation did so more in the mornings.

When time spent for defecation was investigated, it was seen that it was mostly less than 10 minutes. The percentage of those who spent more than 30 minutes in the toilet was 2.1% among the first year students, 1.1% among the third and 1% among the sixth year students.

Reading in the toilet (mini electronic device use) rates were 32.86%, 34.95% and 38.39% for first, third and sixth year students respectively. The difference among the groups, however, was not statistically significant. The results of our study revealed no correlation between reading in the toilet and constipation.

When the types of toilet preferences were investigated, no significant difference was seen between the preference for alla turca and alla franca toilets. However more than half of the students preferred the former. Toilet preference had no effect on constipation. Those who used the alla franca toilets spent more time in the toilet. This was also found to be statistically significant. All the collected data has been summarized in Table 1.

DISCUSSION

It is not possible to classify bowel habits. In other words, normal bowel order is not uniform. Numerous factors and personal characteristics may affect bowel habits. Moreover there is only a limited number of studies on identifying bowel habits in literature. Yet such studies only reflect the characteristics of the society they were conducted in. Changes in bowel habits may also cause constipation.[10] Slowing down in bowel movements result in constipation. Constipation is usually defined as the slowing down of intestinal content in its movement from the proximal to the distal. Such slowing down is generally observed in the colon. It is more distinct in the distal part of the colon.[11] All these events are referred to as chronic constipation. Colorectal malignity; neurologic, metabolic and endocrine disorders and chronic medication play a significant role in chronic constipation occurring secondary to another reason. The overall prevalence of constipation in the general population is approximately 15%.[12] Age and sex are held responsible as the two important factors. The most significant step of treatment modalities for constipation is to fix bowel habits. The prevalence of constipation in the study groups was 6.35%. The results of our study also revealed that the frequency of constipation increased as the year in medical school advanced. Constipation rates in our study, however, were lower than those reported in literature. The most important reason why this rate was found to be lower than those of literature was that the study was conducted with young and healthy active individuals. Our results showed some increase as age went up. The most significant disadvantage of our study group was that they spent more time on the toilet.

Table 1. Toilet habits

	Year			p
	Year 1 (n: 140)	Year 3 (n: 186)	Year 6 (n: 99)	
Age: mean±s.d (min-max))	18.37±0.703 (17-21)	21.56±1.909 (20-43)	23.82±0.850 (22-27)	
Defecation frequency (n (%))				0.115
Daily	116 (82.9%)	141(75.8%)	68 (68.7%)	
Every other day	21 (15.0%)	33 (17.7%)	24 (24.2%)	
Every three days	1 (0.7%)	10 (5.4%)	6 (6.1%)	
Once a week	1 (0.7%)	2 (1.1%)	1(1.0%)	
More than seven days	1 (0.7%)	0 (0.0%)	0 (0.0%)	
Time of defecation (n (%))				0.020*
Morning	22 (15.7%)	49 (26.3%)	24 (24.2%)	
Noon	2 (1.4%)	6 (3.2%)	7 (7.01%)	
Evening	15 (10.7%)	28 (15.1%)	11 (11.1%)	
Irregular	101 (72.1%)	103 (55.4%)	57 (57.6%)	
Time spent in the toilet (n (%))				0.125
Less than 5 mins	72 (51.4%)	78 (41.9%)	38 (38.4%)	
5-10 mins	52 (37.1%)	93(50.0%)	47 (47.5%)	
10-20 mins	7 (5.0%)	9 (4.8%)	11 (11. %)	
20-30 mins	6 (4.3%)	4 (2.2%)	2 (2.0%)	
More than 30 mins	3 (2.1%)	2 (1.1%)	1 (1.0%)	
Change in bowel habits (n (%))				0.685
Yes	19 (13.6%)	31 (16.7%)	17 (17.2%)	
No	121 (86.4%)	155 (83.3%)	82 (82.8%)	
Reading in the toilet (n (%))				0.836
Yes	47 (33.6%)	65 (34.9%)	37 (37.4%)	
No	93 (66.4%)	121 (65.1%)	62 (62.6%)	
Which type of toilet do you use?				0.867
Alla turca	72 (51.4%)	101 (54.3%)	52 (52.5%)	
Alla franca	68 (48.6%)	85 (45.7%)	47 (47.5%)	
Sex (n (%))				0.002*
Male	47 (33.6%)	88 (47.3%)	55 (55.6%)	
Female	93 (66.4%)	98 (52.7%)	44 (44.4%)	
Are you consti- pated? (n (%))				0.103
Yes	4 (2.9%)	14 (7.5%)	9 (9.1%)	
No	136 (97.1%)	172 (92.5%)	90 (90.9%)	

*(p<0.05)

Defecation training is very important for patients with chronic constipation. Such individuals need to reorganize their lifestyles. A well-balanced diet with sufficient fibrous food and liquid is effective in preventing constipation.[13] Chronic diseases and medication to treat these trigger constipation. Abuse of laxatives have a negative effect on bowel habits. A well-balanced diet is important in fixing bowel habits. The gastrocolic reflex after eating, particularly after breakfast, facilitates defecation.[14] Defecation after eating is recommended to capitalize on this reflex. A great majority of our cases did not have defecation habits, on the contrary, they had irregular defecation habits. Most of our cases with regular defecation did so in the mornings. We believe that regular bowel habits would be challenging for groups involved in busy education and training schedules like those of medical schools. We, however, observed that medical training did not reduce the frequency of constipation. Chronic medication administration was very low in our age group.

Data on time spent in the toilet or restrooms are very limited in literature. Researchers have usually reported that it was less than 10 mins.[15] Yet there is no exactly accurate and widely accepted conception on time. It varies due to social and personal characteristics. Such time is affected by many factors such as constipation, perianal diseases, age, sex, lifestyle, chronic diseases and medication. Studies in literature have suggested that sitting on the toilet for a prolonged period of time rendered individuals to be more prone to contracting benign anorectal diseases like hemorrhoidal disease.[16] The results of such studies have also indicated that patients with hemorrhoids opted for spending more time in the restroom and their reading in the toilet rates were higher. Pelvic floor dyssynergia makes up about half of functional constipation cases. Pelvic floor dyssynergia is recognized as a behavioral problem that may be exacerbated in the presence of emotional stress.[17,18] The primary way to increase the quality of life for a significant part of the population affected by constipation is bowel habit training. The results of our study showed that 89% of the first year medical students, 92% of the third years and 86% of the sixth years spent less than 10 minutes in the toilet. These figures corresponded to those accepted for healthy individuals.

Studies on reading in the toilet has recently been on the rise in literature. Such behavior, however, goes as high as 40% particularly in western societies.[19] This rate is much higher in the male sex. Interestingly this rate is higher within the more educated and higher socio-economic classes and it affects the time spent in the toilet.[20] When we referred to reading in the toilet, we indicated telephone use, meaning the use of mini electronic devices rather than reading newspapers or magazines. This rate varied between 33.6% and 37.4% in our study.

Data on toilet use or bathroom behavior are quite limited in literature. Studies are usually on the results of defecation in squatting or sitting positions. Such studies report more positive results for defecation while squatting.[21] The results of our study revealed that alla turca toilets (squatting position) were preferred more by the participants. We believe that this result was brought about by the material conditions of toilets or social habits.

CONCLUSION

Constipation is seen less in the young population than the elderly population. Bowel habits vary according to societies and personal characteristics. Constipation was observed more in individuals with irregular bowel habits within the scope of our study. We think that more frequent irregular stools, especially in 1st and 6th grade medical students, may be due to seasonal factors. Reading books in the toilet or the use of telephone and mini electronic devices are becoming common among medical students in our country as well as all over the world. Its prevalence is similar to that of the developed countries. Reading in the toilet elongates the time spent in the toilet. The relationship between bowel habits and constipation in medical students is likely to be revealed by more comprehensive, multifactorial and multicenter studies..

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was initiated with the approval of the Necmettin Erbakan University Meram Medical Faculty Clinical Researches Ethics Committee (Date: 2018, Decision No: 1603).

Informed Consent: Written consent was obtained from the patient participating in this study

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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